

Amendments to the Claims

This listing of claims will replace all prior listings of claims in the application.

Listing of Claims

1. (Canceled)

2. (Currently Amended) The graphite electrode according to ~~claim 1~~claim 4, wherein the ~~uneven structure~~cooling groove is a spiral groove.

3. (Currently Amended) The graphite electrode according to ~~claim 1~~claim 4, wherein the ~~uneven structure~~cooling groove is a spiral groove, ~~the spiral groove~~ having a spiral angle β of 45° or more but less than 90° , a groove pitch P of 0.2 to 10 mm, and a groove depth h of 0.2 to 5 mm.

4. (New) In a graphite electrode provided in an electric arc furnace used for steelmaking in which an upper portion of the graphite electrode protrudes through the roof of the electric arc furnace and is cooled by spraying a cooling liquid on the upper portion of the graphite electrode, the improvement comprises a cooling groove being provided in the surface of the upper portion of the graphite electrode for carrying the cooling liquid on the upper portion of the graphite electrode.